THE CLAIMS:

For the convenience of the Office, the following listing provides the pending status of the claims in the present application.

1-45. (Cancelled).

46. (Previously presented) The method according to Claim 84, wherein said selected voltage class is not higher than 10 kV.

47. (Previously presented) The method according to Claim 84, wherein said impact is of at least 50 J energy.

48. (Previously presented) The method according to Claim 47, wherein said selected voltage class is between 10 kV and 60 kV.

49. (Previously presented) The method according to Claim 84, wherein said impact is of at least 70 J energy.

50. (Previously presented) The method according to Claim 49, wherein said selected voltage class is higher than 60 kV.

51. (Previously presented) The method according to Claim 84, wherein said insulating layer thickness is at least 20% smaller than the insulating layer thickness provided for in IEC Standard 60502-2 (Ed. 1.1–1998-11) for the corresponding voltage class.

52. (Previously presented) The method according to Claim 84, wherein said selected voltage class is 10KV and said insulating layer thickness is not higher than 2.5 mm.

53. (Previously presented) The method according to Claim 84, wherein said predetermined voltage class is 20KV and said insulating layer thickness is not higher than 4 mm.

54. (Previously presented) The method according to Claim 84, wherein said selected voltage class is 30KV and said insulating layer thickness is not higher than 5.5 mm.

55. (Previously presented) The method according to Claim 84, wherein said conductor is a solid rod.

56. (Previously presented) The method according to Claim 84, wherein the cable further comprises an electric shield surrounding said insulating layer, said electric shield comprising a metal sheet shaped in tubular form.

57. (Previously presented) The method according to Claim 84, wherein said insulating layer thickness is selected so that the electrical stress within the insulating layer

when the cable is operated at a voltage corresponding to said selected voltage class ranges among values between 2.5 and 18 kV/mm.

58. (Previously presented) The method according to Claim 84, wherein said protective element is placed in a position radially external to said insulating layer.

59. (Previously presented) The method according to Claim 84, wherein the degree of expansion of said expanded polymeric layer is between 0.35 and 0.7.

60. (Previously presented) The method according to Claim 59, wherein said degree of expansion is between 0.4 and 0.6.

61. (Previously presented) The method according to Claim 84, wherein said expanded polymeric layer has a thickness between 1 and 5 mm.

62. (Previously presented) The method according to Claim 84, wherein an expandable polymeric material of said expanded polymeric layer is selected from polyolefin polymers or copolymers based on ethylene and/or propylene.

63. (Previously presented) The method according to Claim 62, wherein said expanded polymeric material is selected from:

a) ethylene copolymers with an ethylenically unsaturated ester in which the quantity of unsaturated ester is between 5% and 80% by weight,

b) elastomeric copolymers of ethylene with at least one C_3-C_{12} α-olefin, and optionally a diene, having the following composition: 35%-90% as moles of ethylene, 10%-65% as moles of α-olefin, 0%-10% as moles of diene,

c) copolymers of ethylene with at least one C_4-C_{12} α-olefin, and optionally a diene, having a density between 0.86 and 0.90 g/cm^3, or

d) polypropylene modified with ethylene/C_3-C_{12} α-olefin copolymers where the ratio by weight between polypropylene and the ethylene/C_3-C_{12} α-olefin copolymer is between 90/10 and 30/70.

64. (Previously presented) The method according to Claim 84, wherein said protective element further includes at least one non-expanded polymeric layer coupled with said expanded polymeric layer.

65. (Previously presented) The method according to Claim 64, wherein said non-expanded polymeric layer has a thickness in the range of 0.2 to 1 mm.

66. (Previously presented) The method according to Claim 64, wherein said non-expanded polymeric layer is made of polyolefin material.

67. (Previously presented) The method according to Claim 64, wherein said non-expanded polymeric layer is in a position radially external to said expanded polymeric layer.

68. (Previously presented) The method according to Claim 67, wherein said protective element comprises a second non-expanded polymeric layer in a position radially internal to said expanded polymeric layer.

69. (Previously presented) The method according to Claim 84, comprising a further expanded polymeric layer in a position radially internal to said protective element.

70. (Previously presented) The method according to Claim 69, wherein said further expanded polymeric layer is in a position radially external to said insulating layer.

71. (Previously presented) The method according to Claim 69, wherein said further expanded polymeric layer is semiconductive.

72. (Previously presented) The method according to Claim 69, wherein said further expanded polymeric layer is water swellable.

73. (Previously presented) The method according to Claim 84, wherein said conductor is a metal rod.

74. (Previously presented) The method according to Claim 84, wherein said insulating layer is made of a non-crosslinked base polymeric material.

75. (Previously presented) The method according to Claim 84, wherein said selected voltage class belongs to a medium or high voltage range.

76. (Previously presented) The method according to Claim 84, wherein the protective element thickness has a value smaller than 7.5 mm for a conductor cross-sectional area greater than 50 mm^2 and a value greater than 8.5 mm for a conductor cross-sectional area smaller than or equal to 50 mm^2.

77. (Previously presented) The method according to Claim 84, wherein said selected voltage class is higher than 60 kV and said impact is at least 70 J.

78. (Previously presented) The method according to Claim 84, wherein said selected voltage class is not higher than 60 kV and said impact is at least 50 J.

79. (Previously presented) The method according to Claim 84, wherein said selected voltage class is not higher than 10 kV and said impact is at least 25 J.

80-82. (Cancelled).

83. (Previously presented) The method according to Claim 84, wherein said expanded polymeric layer has constant thickness.

84. (Previously presented) A method for designing a cable comprising a conductor, an insulating layer surrounding said conductor and a protective element surrounding said conductor, said protective element including at least one polymeric expanded layer, comprising the steps of:

selecting a conductor cross-sectional area;

selecting a voltage class for the cable;

determining a correlation between a thickness of said protective element and a thickness of said insulating layer so as to ensure the safe operation of the cable in the selected voltage class on said selected conductor cross-sectional area and that the cable is not detectably damaged upon an impact on the cable by an energy of at least 25 J;

selecting a thickness of said protective element;

selecting a correlated thickness of said insulating layer;

using said selected insulating layer thickness and said selected protective element thickness in the design of the cable for said selected voltage class and selected conductor cross-sectional area.

85. (Previously presented) The method according to Claim 84, wherein said step of selecting a thickness of said protective element comprises the step of determining a thickness of said expanded polymeric layer.

86. (Previously presented) The method according to Claim 84, wherein said step of selecting a thickness of said protective element comprises the step of selecting a thickness of said expanded polymeric layer and determining a thickness of at least one non-expanded polymeric layer associated with said expanded polymeric layer, said protective element comprising said at least one non-expanded polymeric layer.

87. (Previously presented) The method according to Claim 86, wherein said step of determining a thickness of at least one non-expanded polymeric layer comprises the step of correlating in inverse relationship the thickness of said at least one non-expanded polymeric layer with the conductor cross-sectional area.

88. (Cancelled).